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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,265	12/29/2000	Erhan Guven	TI-32149	7391

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EXAMINER	
NGUYEN, ALAN V	
ART UNIT	**PAPER NUMBER**
2662	4

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/750,265	GUVEN ET AL.	
	Examiner	Art Unit	
	Alan Nguyen	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 29 December 2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

On page 22, line 1, "very packet" should read "vary packet".

Appropriate correction is required.

Claim Objections

2. **Claim 13** is objected to because of the following informalities:

On line 14 there is improper numbering of the base claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3-5, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li (US 6,549,587) in view of Anandakumar et al (US 6,574,213) hereafter Anandakumar.

Regarding **claims 1, 3, and 12** Li discloses a method and apparatus for measuring the efficiency of transport of modem relay packets over a packet network **(see figure 23)**, comprising:

means for connecting to a first gateway of said modem relay connection; means

for connecting to a second gateway of said modem relay connection **(calling/answer modem establishes a modem connection with calling/answer gateway. In data relay mode, the packet data modem exchange provides demodulation and nodulation of data signals; for example see col 53 lines 17-31 and col 54 lines 41-67)**;

a computing device connected to each of said first and second connecting means, and for running at least one terminal program for at least one of said gateways **(gateways contain programmable DSP software with memory at the core, network channel and telephony interfaces, and a host residing in the DSP itself; col 6 lines 62-67; also see figure 2)**;

Li, however, fails to expressly disclose the step of determining the transport efficiency of said packet network by comparison of said known throughput rate of said reference modem data stream to said determined throughput rate of said received modem data stream.

Anandakumar discloses a voice-over-IP communications system **(figure 19)** that uses quality of service parameters to maintain transmission accuracy and efficiency. **(adaptation embodiment using a throughput estimate for both delay-jitter handling approaches compares a ratio of a corresponding throughput estimate to current overall transmission rate with a threshold. The packet loss rate L is determined through various combinations of source rate, time diversity and path diversity. It is understood that the packet loss rate is directly related to the**

transport efficiency value; For example see col 20 lines 4-52 and col 34 lines 28-43. For network function see col 40 lines 12-41 and lines 47-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Li's modem relay packet network to utilize the quality of service setup in determining transmission efficiency and packet loss rates, as shown by the PSTN-packet network system of Anandakumar. The motivation is an obvious need for a system to control packet loss, jitter, and delays. This is necessary in a network that bridges circuit switch data with packet switched data as explained by Anandakumar on column 1 lines 49-67 and column 2 lines 1-9.

Regarding **claim 4** with the features of parent claim 1 addressed above Li discloses where the throughput efficiency is measured after said gateways have negotiated appropriate protocols and have established a steady-state connection over said packet network **(Li discloses that before transmission of data signals across the packet based network, the connection between the two modems must first be negotiated through a sequence. Negotiation of the data signal transmission rate between the modems is carried out; col 54 lines 41-67)**.

Regarding **claim 5** with the features of parent claim 1 addressed above Li discloses where the modem relay connection is established across a network **(Li discloses that the modem relay mode enables transmission of data signals over a packet based system; col 52 lines 65-67)**.

Regarding **claim 11** with the features of parent claim 1 addressed above Li discloses where the determination of the transport efficiency includes at least two iterative repetitions of said provision of said reference modem data stream and said reception of said transported modem data stream and said comparison of said known throughput rate of said reference modem data stream to said determined throughput rate of said received modem data stream; and wherein said determination is based upon the average efficiency determined after a series of said iterations **(adaptation embodiment using a throughput estimate for both delay-jitter handling approaches compares a ratio of a corresponding throughput estimate to current overall transmission rate with a threshold. The packet loss rate L is determined through various combinations of source rate, time diversity and path diversity. It is understood that the packet loss rate is directly related to the transport efficiency value; For example see col 20 lines 4-52 and col 34 lines 28-43. For network function see col 40 lines 12-41 and lines 47-65; Performance calculations is understood to be made continuously, since data is constantly transmitting. It is known by many in the art to compute averages of performance data to obtain more accurate results)**.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Leiper (US 6,112,234).

Regarding **claim 2** Li further fails to disclose where the terminal program runs a

Z-modem protocol for generating the modem data stream at a known throughput rate.

Leiper discloses the use of the z-modem protocol to transmit data packets **(col 5 lines 25-30)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Li's apparatus to utilize the z-modem protocol for generating the modem data stream at a known throughput rate, as taught by Leiper. The motivation is that a robust transmission protocol that has many established features that are desirable for use in the present invention, such as built-in error checking features, and the ability to request and monitor retransmission of bad blocks of data. The Z-modem protocol also has the ability to begin transmission of a new file before completion of a prior file transmission, and to continue an interrupted file transfer where the transfer left off. Although the Z-modem protocol has historically been associated only with dial-up data transfer (as in bulletin board systems), it can be applied in network or wide area network system by assigning each computer in the network an IP address and providing for image transfer from a server to a workstation by a TCP to TCP port communication, as shown by Leiber on column 4, lines 15-30.

6. Claims 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Anandakumar et al (US 6,574,213) hereafter Anandakumar.

Regarding **claims 6-10** Li discloses the use of modem relay transmission **(see figure 23 and col 53 lines 1-43)**,

Li further fails to expressly disclose where the modem relay connection is

established across a network simulator.

Anandakumar further discloses the use of a network simulator to determine transmission performance based on packet loss and packet delay **(FIG. 12 illustrates packet loss simulation. The model simulates to determine the packet loss rate L that results from various combinations of source rate, time diversity and path diversity; col 34 lines 28-43; FIG. 15 shows voice packets entering packet encapsulation unit 1571 where they are de-packetized and passed to a Packet Playout Control Unit 1581. Control Unit 1581 has software that implements process steps for delay handling, delay jitter handling and lost packet compensation. Incoming RTCP packets contain lost packet fraction information from a destination across the network external to integrated circuit 1511; col 36 lines 5-14; Also, further embodiments use diversity adaptation alone or combined with source rate adaptation with the following advantages for real-time traffic: overcome distributed congestion handle heterogeneous traffics overcome packet losses due to bit errors; col 6 lines 26-43)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Li's modem relay packet network to utilize the quality of service setup in determining transmission efficiency and packet loss rates, as shown by the PSTN-packet network system of Anandakumar. The motivation is an obvious need for a system to control packet loss, jitter, and delays. This is necessary in a network that bridges circuit switch data with packet switched data as explained by Anandakumar on column 1 lines 49-67 and column 2 lines 1-9.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Bechtolsheim et al (US 6,515,963) hereafter Bechtolsheim.

Regarding **claim 13** Li discloses determining the average rate for a given protocol with given network conditions **(adaptation embodiment using a throughput estimate for both delay-jitter handling approaches compares a ratio of a corresponding throughput estimate to current overall transmission rate with a threshold. The packet loss rate L is determined through various combinations of source rate, time diversity and path diversity. It is understood that the packet loss rate is directly related to the transport efficiency value; For example see col 20 lines 4-52 and col 34 lines 28-43. For network function see col 40 lines 12-41 and lines 47-65; Performance calculations is understood to be made continuously, since data is constantly transmitting. It is known by many in the art to compute averages of performance data to obtain more accurate results).**

Li further fails to disclose where the steps of collecting a group of data representative of the network throughput efficiency under a number of network conditions and corresponding to a plurality of known file transfer protocols; determining the network throughput efficiency values corresponding to a plurality of file transfer protocols and determining the average rate for a given protocol with given network conditions; generating a representation indicative of the relationship between modem relay system design and packet transport efficiency across said network.

Bechtolsheim discloses a dynamic buffer management scheme for a data communications device that uses the known throughput of different types of protocols to assess a scenario **(In queue-based schemes, incoming flows are classified according to their actual priority, as determined by the receiving router and assigned accordingly to output queues within the router. High priority flows, such as time-sensitive voice traffic, are placed in a queue that is read out more often. Low priority flows, such as file transfer protocol (FTP) or hypertext transfer protocol (HTTP) flows, are placed in queues that are read out of the router at a slower rate; col 2 lines 12-26)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Li's apparatus to measure the throughput values of multiple transfer protocols and giving representation of the protocol based on the throughput value, as taught by Bechtolsheim. The motivation is a more accurate and efficient system that can use numerous schemes, used to control the buffering and enqueuing methods to achieve a measure of throughput balance or fairness among flows, thus managing router/switch bandwidth as efficiently as possible, as shown by Bechtolsheim on column 2 lines 15-26.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patent is cited to show the state of the art with respect modem relay:

US Patent (6,434,169) to Verreault

US Patent (6,665,317) to Scott

US Patent (6,678,250) to Grabelsky et al

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 703-305-0369. The examiner can normally be reached on 9am-6pm ET

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AVN

April 2, 2004

RICKY NGO
PRIMARY EXAMINER